

Application No. 10/573,888

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Docket No.: 80250(302741)

Amendment dated December 10, 2007

Reply to Office Action of September 12, 2007

AMENDMENTS TO THE ABSTRACT

Please substitute the following paragraph(s) for the abstract now appearing in the currently filed specification:

An optical functional waveguide having a small size, used with ~~saved~~ stored energy, controlling the phase of light at high speed, and adjusting the optical path length. The optical functional waveguide ~~comprises~~ includes a substrate (11), a quartz waveguide clad (12), a quartz waveguide core (13), groove structures (14), a filling material (15), and heater electrode (16). The filling material (15) placed in the groove structures (14) is, e.g., a resin transparent to the wavelength region of the guided light, and the refractive index temperature coefficient is about 10 to 100 times that of quartz. The heater electrode (16) is interposed between the groove structures (14) provided along the optical path. Therefore, the temperature of the filling material (15) can be varied sharply and quickly with small ~~little~~ little energy expended.